CLAIMS

What is claimed as new and desired to be protected by Letters Patent of the United States is:

1. An RFID tag comprising:

an interrogator, said interrogator outputting a power signal and a command signal;

a resonance circuit, coupled to the interrogator;

a switching circuit, said switching circuit turning on and off the resonance circuit;

a power circuit for smoothing said power signal, said power circuit outputting a constant voltage;

a voltage monitor circuit for monitoring a rate at which the constant voltage signal rises;

a resonance capacitive switching circuit for turning on/off the switching circuit in response to an output of the voltage monitor circuit when a predetermined rise is not obtained; and

anti-collision means for outputting anti-collision data in response to a command from the interrogator.

2. The RFID tag according to claim 1, wherein said resonance circuit comprises an inductance device and a plurality of capacitive devices having a resonant frequency.

3. The RFID tag according to claim 2, wherein the command signal includes a predetermined resonant frequency signal.

4. The RFID tag according to claim 3, wherein the capacitive devices comprise a fixed capacitive device and at least one or more variable capacitive devices.

5. The RFID tag according to claim 4 wherein the variable capacitive devices are adjusted when the resonance frequency of the capacitive devices are increased to match the resonance frequency of the capacitive devices approach the resonance frequency of the interrogator.

6. The RFID tag according to claim 1, wherein the voltage monitor circuit comprises:

a first voltage detection circuit for outputting a detection output when the constant voltage circuit outputs a low voltage;

a timer circuit, which receives an output of the first voltage detection circuit to output a timer signal for a predetermined period of time; and

a second voltage detection circuit for outputting a second detection output when an output of the constant voltage circuit reaches an operating voltage.

7. The RFID tag according to claim 6, wherein the switching circuit is driven to reduce the resonance frequency of the capacitive devices when an output of the second voltage detection circuit does not reach the operating voltage during a predetermined period of time.

8. The RFID tag according to claim 7, wherein the switching circuit returns the resonance frequency to an initial state when the voltage capable of a circuit operation cannot be reached

9. The RFID tag according to claim 7, wherein the voltage monitor circuit sequentially separates any different resonance frequencies

of the variable capacitive elements during a second predetermined period of time and returns the resonance circuit to the initial state when all the adjustment capacitances are separated and the operating voltage cannot be reached.

10. A method of performing data processing of RFID tags comprising the steps of:

initializing area data and mask data in an interrogator;

requesting a plurality of RFID tag data according to the area data and mask data, each of said plurality of RFID tag data including area data, mask data, time slot data, and ID data;

receiving a plurality of RFID tag data in said interrogator;

storing each time slot data and ID data of each RFID tag data that experienced collision; and

adjusting the area data and mask data according to the stored time slot data.

11. The method according to claim 10, further comprising requesting a plurality of RFID tag data according to the adjusted area data and mask data.

12. The method of claim 11, further comprising reading the remaining data from, and storing the time slot data and ID data of RFID tags that have not experienced collision.

13. The method of claim 12, further comprising disabling the RFID tags that have not experienced collision.

14. The method of claim 11, further comprising determining whether any of the requested RFID tag data according to the adjusted area data and mask data experienced collision.

15. The method of claim 14, further comprising storing each time slot data and ID data of each adjusted RFID tag data that experienced collision; and further adjusting the area data and mask data according to the stored time slot data of the adjusted RFID tag data.

16. The method according to claim 14, further comprising adjusting the area data and mask data to an initialized state.

17. A method of performing data processing of RFID tags comprising the steps of:

determining the time slot data and ID data for each of a plurality of RFID tags;

requesting data from said plurality of RFID tags, said request being executed according to a beginning time slot position;

receiving and storing the time slot data for RFID tags involved in a collision under the beginning time position;

storing data from and subsequently disabling RFID tags not involved in a collision; and

adjusting the time slot position and re-requesting data from RFID tags determined to be involved in a collision.

18. The method according to claim 17, wherein the step of adjusting the time slot position comprises incrementing the time slot.

19. The method according to claim 17, further comprising (a) receiving and storing the time slot data for RFID tags involved in a collision under the adjusted time slot, (b) adjusting the time slot position

again and re-requesting data from RFID tags determined to be involved in a collision, and repeating steps (a) and (b) until it is determined that no collisions are present.